

Mathematics Programme of Study: 2025-2026

Department Vision

The Maths department aims to provide all students with a rewarding and enjoyable experience of Mathematics. We will prepare students to become confident, numerate individuals who are able to deal with all aspects of Mathematics in their chosen career and in their adult life.

This will be accomplished through our commitment to excellent teaching, a well- designed curriculum with variety to motivate and engage students as part of our ‘build a mathematician’ ethos. We have high expectations of all students so that they will recognise and achieve their full potential. We aim to develop students with skills in analysis, reasoning, problem solving, creativity, collaboration, and resilience so that they can meet the mathematical problems they face with enthusiasm, curiosity and perseverance.

Curriculum Intent and Implementation

Our long-term aim is to produce an ambitious and connected curriculum accessible to all students from Year 7 to Year 13. We want pupils to become fluent in the fundamentals of mathematics, to be able to reason and to solve problems in line with the National Curriculum. To learn mathematics effectively, some topics have to be learned before others, and so we have carefully ordered our topics so students can build on prior knowledge and have as wide a variety of mathematical experiences as possible in each term and year. The six overarching topic areas in Maths are:

Number, Algebra, Geometry and Measure, Ratio & Proportion & Rates of Change, Statistics, and Probability.

Sub- topics within these areas of Maths are often revisited and linked to the concepts in other areas of the curriculum, making sure that topics are covered thoroughly so pupils experience variety as well as consolidation. Conceptual understanding is key and our lessons focus on small step learning, which also encourages deeper understanding so they can be built upon. Alongside concept and content, we also make links to a broad range of transferable skills for students to be:

Systematic, Thorough, Critical, Reflective, and Investigative.

As part of the disciplinary literacy policy in our school, the correct use of mathematical language and terminology is also taught. This helps develop confident learners of Maths through the skills of speaking, reading, listening and writing. Enrichment projects offer students an insight into how Maths links to other subjects such as Science to bring knowledge to life. After-school clubs aim to develop wider cultural awareness through puzzles and crafts showing the creative side to Maths as well as revision club. The more able take part in the UK Maths Challenge.

Our curriculum not only covers all the content of the National Curriculum, GCSE and A level courses, but also provides pedagogic advice for teachers through joint planning and sharing of resources to suit the needs of each class.

KS3- Curriculum Summary (Year 7-9)

Our KS3 Scheme of Work (SOW) is designed entirely on the DfE National Curriculum framework. We have structured this specification into 16 units of work. This spiralling SOW enables our students to build confidence and retention through repetition, mastery and extension of knowledge. The SOW is intended to build firm foundations for KS4- GCSE by deepening students' knowledge, understanding and confidence.

Our medium term plans ensure that our students have access to every unit in the framework. These units have been further divided into three stages to support differentiation when planning to ensure ambition and challenge. Every teacher is able to see the scope of each unit so that there is no ceiling on learning. Students have 5 x 70mins lessons per fortnight in year 7 and 8 and 6 x 70mins in year 9.

YEAR 7	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Student learn the content and skills under these topic areas:	Number Sense and Calculations Expressions and Equations	Metric Units of Measure Perimeter and Area	Factors, Multiples and Primes Fractions	Brackets Properties of 2D shapes Angles	Averages and Range Presenting Data	Fractions, Decimals and Percentages Proportion Probability
Students learn how to:	Each topic in Maths contains many sub-topics and skills. As we go up in the year groups, these topics become more in-depth and build on prior knowledge from KS2 and prepare students for KS4. Therefore, topics repeat from year to year for consolidation and fluency. Students regularly review their learning with knowledge recall starters, interleaving homework tasks and self-assessment of classwork with discussions on misconceptions.					
Assessment	Students are assessed on the topics covered so far at each whole-school assessment point. The 2nd and 3rd assessment in the year assess students on the topics covered since the previous assessment as well as a few questions on misconceptions from the previous assessment. This is for interleaving practice and long term retention in preparation for GCSE style exams. When assessments are coming up, a detailed revision list is shared with key words.					

YEAR 8	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Student learn the content and skills under these topic areas:	Multiplication, Division, Rounding, and Estimation Percentages Solving Equations	Sequences Area	Index Laws and standard form Ratio and Scale Factors, Multiples and Primes	Algebra Review Coordinates, midpoints and graphs	Properties of 3D shapes Volume and Surface area Angles	Probability Statistical Diagrams
Students learn how to:	Each topic in Maths contains many sub-topics and skills. As we go up in the year groups, these topics become more in-depth and build on prior knowledge from KS2 and prepare students for KS4. Therefore, topics repeat from year to year. Students regularly review their learning with knowledge recall starters, interleaving homework tasks and self-assessment of classwork with discussions on misconceptions. When assessments are coming up, a detailed revision list is shared with key words.					
Assessment	Students are assessed on the topics covered so far at each whole-school assessment point. The 2nd and 3rd assessment in the year assess students on the topics covered since the previous assessment as well as a few questions on misconceptions from the previous assessment. This is for interleaving practice and long term retention in preparation for GCSE style exams. When assessments are coming up, a detailed revision list is shared with key words.					

YEAR 9	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Student learn the content and skills under these topic areas:	Transformations and Symmetry Equations and Inequalities Coordinates, Linear Graphs	Coordinates, Linear Graphs Ratio & Proportion	Fractions, Decimals and Percentages 2D shapes	Index Laws and Standard Form Pythagoras Theorem	Transition into GCSE: Foundation: Algebra basics Expressions Substitution into formula Types of data Sampling Tables, charts and graphs Higher: Albra basics Sequences Averages and range Representing and interpreting data and scattergraphs	Transition into GCSE: Foundation: Pie Charts Scattergraphs Sequences Higher: Representing and interpreting data and scattergraphs Cumulative Frequency and box plots Averages and range
Students learn how to:	Each topic in Maths contains many sub-topics and skills. As we go up in the year groups, these topics become more in-depth and build on prior knowledge from KS2 and prepare students for KS4. Therefore, topics repeat from year to year. Students regularly review their learning with knowledge recall starters, interleaving homework tasks and self-assessment of classwork with discussions on misconceptions. When assessments are coming up, a detailed revision list is shared with key words.					
Assessment	Students are assessed on the topics covered so far at each whole-school assessment point. The 2nd and 3rd assessment in the year assess students on the topics covered since the previous assessment as well as a few questions on					

misconceptions from the previous assessment. This is for interleaving practice and long term retention in preparation for GCSE style exams. When assessments are coming up, a detailed revision list is shared with key words.

KS3- Curriculum Enhancement

- Enrichment projects: mean doll, recycling
- Number Day
- Pi Day
- Star Wars Day
- Maths Assemblies
- Junior Maths Challenge
- Careers week

KS4 Curriculum Summary (Year 10-11)

Exam board and Specification details:

EDEXCEL 1MA1- Higher and Foundation entries are available (100% exams, no coursework)

3 exam papers are sat at the end of the 2-year course, each 90mins long.

Paper 1 is a non-calculator and papers 2 and 3 allow the use of a calculator.

Assessment objectives:

AO1- Use and apply standard techniques - 40% at Higher and 50% at foundation

AO2- Reason, interpret and communicate mathematically- 30% at Higher and 25% at foundation

AO3- Solve problems within mathematics and in other contexts-30% at Higher and 25% at foundation

Year 10 is the year that helps the students make that link from KS3 to KS4 Maths. The emphasis is to connect the skills and knowledge as well as help develop techniques for GCSE-style problems at foundation level. The teaching is geared to help students bridge between single answer questions to those that require more reading and interpretation so that the appropriate Maths is used to solve the question and real-life problems in context. Every student is stretched with their GCSE journey in mind. Our medium term plans ensure that our students have access to every unit in the exam board specification, which is taught in a linear fashion. In other words, these units are not repeated and build on KS3 teaching. These units have been further divided into smaller stages to support differentiation when planning to ensure ambition and challenge. Every teacher is

able to see the scope of each unit so that there is no ceiling on learning. We aim for students to have confidence and competence with mathematical content so that they can apply it flexibly to solve problems.

Students have 7 x 70mins lessons per fortnight in year 10 and 8 x 70mins in year 11. The catch-up programme this year has been integrated into PREP time for Maths with 3 x 30mins per week for Year 10 and 3 x 30mins in year 11.

YEAR 10	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Foundation Tier	Working with negative numbers Four operations with decimals Powers, roots and index laws Factors, multiples and primes, HCF, LCM, prime factors Fractions, Decimals, Percentages Percentages Equations and inequalities	Sequences Properties of shapes, parallel lines and angle facts	Perimeter, area and Volume Ratio Proportion	Transformations	Probability Straight Line Graphs	Multiplicative Reasoning Statistics: sampling and the averages
YEAR 10	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Higher Tier	Calculations, Checking and rounding Indices, roots, reciprocals and	Ratio and proportion Polygons, angles and parallel lines	Probability Factoring, expanding 3 brackets, rearranging	Cumulative Frequency, Box Plots and histograms	Graphs, the basics and real life graphs Linear Graphs and coordinate	Velocity time graphs Direct and inverse proportion

	<p>hierarchy of operations</p> <p>Factors, multiples, primes, standard form and surds</p> <p>Fractions, decimals, Percentages</p>	<p>Pythagoras' Theorem and Trigonometry</p>	<p>Solving Quadratic and simultaneous equations</p> <p>Inequalities</p>		<p>geometry</p> <p>Quadratic, cubic and other graphs</p> <p>Perimeter, area and circles</p> <p>3D forms, volumes, cylinder,s cones and spheres</p>	<p>Transformations</p>
Students learn how to:	<p>Each topic in Maths contains many sub-topics and skills. As we go up in the year groups, these topics become more in-depth and build on prior knowledge from KS3 and prepare students for KS4. Topics are taught in a linear fashion and not repeated because they build on KS3 knowledge. To help with retention and building confidence, students regularly review their learning with knowledge recall starters, interleaving homework tasks and self-assessment of classwork with discussions on misconceptions. When assessments are coming up, a detailed revision list is shared with key words.</p>					
Assessment		Mock GCSE Assessment on topics covered so far		Mock GCSE Assessment on topics covered so far		Mock GCSE Assessment on topics covered so far
YEAR 11	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Foundation Tier	<p>Working with Fractions</p> <p>Indices and standard form, including index laws</p> <p>Straight line</p>	<p>Plans and elevations</p> <p>Constructions, loci and bearings</p> <p>Pythagoras' Theorem</p> <p>Trigonometry</p>	<p>Algebra review of y10 skills</p> <p>Rearranging equations</p> <p>Quadratic Equations</p> <p>Revisit of Area,</p>	<p>Revisit: Transformations</p> <p>Equations and inequalities</p>	<p>Targeted therapy of topics before exam and any missed off topics or skills</p>	<p>Targeted therapy continues...</p> <p>Study Leave after all 3 papers have occurred.</p> <p>Y11 into 12 A'level bridging days</p>

	graphs review and follow onto Quadratic graphs Column vectors and basic vector geometry		perimeter and volume and surface area			
YEAR 11	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Higher Tier	Graphs of Trigonometric functions and graph transformations Further Trigonometry Review Factorsing, rearranging, formulae, functions, proof and completing the square Accuracy & Bounds	Multiplicative Reasoning, including Density, Speed, Force Similarity and Congruence in 2D and 3D, including frustums Construction, Loci, & Bearings	Circle theorems Revise Straightline graphs Shading inequalities of graphs Circle geometry Vectors	Stratified sampling Advanced indices Inter-quartile range Product Rule	Targeted therapy of topics before exam and any missed off topics or skills	Targeted therapy continues... Study Leave after all 3 papers have occurred. Y11 into 12 A'level bridging days
<i>Students learn how to:</i>	Each topic in Maths contains many sub-topics and skills. As we go up in the year groups, these topics become more in-depth and build on prior knowledge from KS3 and prepare students for KS4. Topics are taught in a linear fashion and not repeated because they build on KS3 knowledge. To help with retention and building confidence, students regularly review their learning with knowledge recall starters, interleaving homework tasks and self-assessment of classwork with discussions on misconceptions. When assessments are coming up, a detailed revision list is shared with key words.					

KS4- Curriculum Enhancement

- Easter Holiday and Saturday workshop for support and revision
- Number Day
- Pi Day
- Maths Assemblies
- Intermediate Maths Challenge
- Careers Week

KAEP6 - KS5 Curriculum Summary (Year 12-13)

Exam board and Specification details:

EDEXCEL 8MA0 and 9MA0 (100% exams, no coursework)

AS - there are 2 exam papers. A pure exam is 2hours long and an Applied paper is 90mins long including both Statistics and Mechanics

A2 - there are 4 exam papers. 2 Pur exams 2hours each and 2 applied papers 90mins each.

Assessment objectives:

AO1- Use and apply standard techniques- 60% at AS level, 50% as A2 level

AO2- Reason, interpret and communicate mathematically- 20% at AS level, 25% as A2 level

AO3- Solve problems within mathematics and in other contexts-20% at AS level, 25% as A2 level

Year 12 is the year that helps the students make that link from KS4 to KS5 Maths. The emphasis is to connect the skills and knowledge as well as help develop techniques for A Level-style problems. The teaching is geared to help students bridge between GCSE questions to those that require more reading and interpretation so that the appropriate Maths is used to solve the question and real-life problems in context. Every student is stretched with their A level journey in mind. Our medium term plans ensure that our students have access to every unit in the exam board specification, which is taught in a linear fashion. In other words, these units are not repeated and built on KS4 teaching. These units have been further divided into smaller stages to support differentiation when planning to ensure ambition and challenge. Every teacher is able to see the scope of each unit so that there is no ceiling on learning. We aim for students to have confidence and competence with mathematical content so that they can apply it flexibly to solve problems.

Students have 7 x 70mins lessons per fortnight in year 12 and year 13. The course is divided up according to the number of teachers specialised to teach the different disciplines in the subject: pure, statistics, mechanics. This year there are 2 teachers sharing the pure aspect 2:3 and 2 teachers sharing the applied aspects 1:1. This makes up the 7 lessons in total and students are taught the full course to cater for their post-18 plans for continuing into further education and linking Maths to the wide variety of courses at University level.

YEAR 12	Pure Maths (66%)	Applied Maths (16.6% each)
AS Mathematics Year 1	<ol style="list-style-type: none"> 1. Algebraic Expressions 2. Quadratics 3. Equations & inequalities 4. Graphs & Transformations 5. Straight Line Graphs 6. Circles 7. Algebraic Methods 8. Binomial Expansion 9. Trigonometric Ratios 10. Trigonometric Identities & Equations 11. Vectors 12. Differentiation 13. Integration 14. Exponentials & Logarithms 	<p>Statistics:</p> <ol style="list-style-type: none"> 1. Data collection 2. Measures of Location & Spread 3. Representation of Data 4. Correlation 5. Probability 6. Statistical Distributions 7. Hypothesis Testing <p>Mechanics:</p> <ol style="list-style-type: none"> 8. Modeling in Mechanics 9. Constant Acceleration 10. Forces & Motion 11. Variable Acceleration
Students learn how to:	<p>Each topic in Maths contains many sub-topics and skills. As we go up in the year groups, these topics become more in-depth and build on prior knowledge from KS4 and prepare students for KS5. Topics are taught in a linear fashion and not repeated because they build on KS4 knowledge. To help with retention and building confidence, students regularly review their learning with knowledge recall starters, interleaving homework tasks and self-assessment of classwork with discussions on misconceptions. When assessments are coming up, a detailed revision list is shared with key words.</p>	
YEAR 13	Pure Maths (66%)	Applied Maths (16.6% each)
A2 Mathematics Year 2	<ol style="list-style-type: none"> 1. Algebraic Methods 2. Functions & Graphs 3. Sequences & Series 4. Binomial Expansion 5. Radians 6. Trigonometric Functions 	<p>Statistics:</p> <p>Regression, Correlation & Hypothesis Testing</p> <ol style="list-style-type: none"> 1. Conditional Probability 2. The Normal Distribution <p>Mechanics:</p> <ol style="list-style-type: none"> 3. Moments

	7. Trigonometry & Modelling 8. Parametric Equations 9. Differentiation 10. Numerical Methods 11. Integration 12. Vectors	4. Forces & Friction 5. Projectiles 6. Applications of Forces 7. Further Kinematics
Students learn how to:	<p>Each topic in Maths contains many sub-topics and skills. As we go up in the year groups, these topics become more in-depth and build on prior knowledge from KS4 and prepare students for KS5. Topics are taught in a linear fashion and not repeated because they build on KS4 knowledge. To help with retention and building confidence, students regularly review their learning with knowledge recall starters, interleaving homework tasks and self-assessment of classwork with discussions on misconceptions. When assessments are coming up, a detailed revision list is shared with key words.</p>	
KAEP6 KS5- Curriculum Enhancement: <ul style="list-style-type: none"> • Easter Holiday and Saturday workshops for support and revision • Workshops in school holidays • Senior Maths Challenge • Cross Curricular links to Science, Physics • Links with AMSP (Advanced Maths Support Programme) 		